

**Government of Karnataka**



**PARA MEDICAL BOARD**

**Revised Syllabus**

**of**

**II & III Year Diploma in Dental Hygiene**

**(Previously first/second year certificate course/  
I year DDH / II DDH)**

**2017**

# Second Year Diploma in Dental Hygiene

## SECTION-A                      Q P Code: 5181 General Anatomy & Histology    30 Hrs

### **Syllabus for Dental Anatomy & Histology**

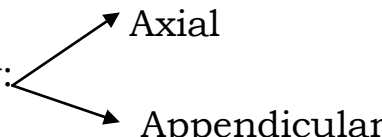
1. Development of tooth and histology of enamel, dentine, pulp & periodontal tissues
2. Dental anomalies
3. Dental nomenclature
4. Attrition, Abrasion & Erosion
5. Sterilisation & Infection control
6. Oral Manifestations of systemic diseases
7. Brief description of Pathology and Bacteriology of dental caries, gingival and periodontal infection

#### 1. Introduction to Anatomy:

a. Definition of Anatomy

b. Anatomical position

- Supine, prone, lithotomy → positions

c. Different parts of human body:  Axial  
Appendicular

→ Head and neck, Thorax and abdomen, pelvis and perineum, upper and lower limbs.

d. Anatomical planes and sections: Median, sagittal, coronal, transverse, longitudinal, horizontal, oblique.

e. Anatomical terms:

Anterior, posterior, superior, inferior, medial, lateral, proximal, distal, superficial, deep, ventral, dorsal, cephalic, caudal, interior, exterior, invagination, evagination, ipsilateral, contralateral.

f. Terms for describing muscles:

Origin, insertion, Belly, tendon, aponeurosis, raphe.

g. Anatomical movements:

Flexion, extension, adduction, abduction, Medial rotation, lateral rotation, circumduction, pronation, supination, protraction, retraction, elevation, depression.

#### 2. Basic tissues: Definitions of

Epithelium, connective tissue (including cartilage and bone), muscle, nerve.

3. Bones of skull → Mandible, maxilla, temporal bone → major features to be identified.
4. Muscles of facial expression.  
→ names, location in the living body, actions and their importance clinically.
5. Muscles of mastication  
→ Brief study of attachments, location in the living, actions and clinical importance in relation to dental mechanics.
6. Blood supply, nerve supply and lymphatic drainage of face, teeth and oral cavity.
7. Course and distribution of 5<sup>th</sup> , 7<sup>th</sup> , 9<sup>th</sup> and 10<sup>th</sup> cranial nerves.
8. Endocrine system – Hypothalamus, Pituitary, thyroid, parathyroid, adrenal and Pancreas → Identification and functional correlation.
9. Tongue: Anatomy, muscles, nerve supply to tongue.

As with all other courses, models, charts, photographs, prosected specimens, 2D/3D animation can be used for theory teaching and practical demonstrations.

## **Practicals**

**20 Hrs**

Gross anatomy including surface anatomy only.

The students should maintain practical records and submit the same to the HOD of Anatomy for scrutiny.

→ Basic tissues to be demonstrated for identification.

→ Identification of parts of skull as a whole.

→ Mandible, maxilla and temporal bones to be demonstrated and studied with their features understood in articulated skull and 3D animation.

→ Muscles of facial expression and muscles of mastication are to be demonstrated and studied in models or cadaver or mannequins. Actions of the muscles may be understood by 3D animation.

→ Models, charts, photographs, 2D/3D animation etc. may be used instead of prosected cadaveric specimens (which may not be available in every institute), to demonstrate and study No. 7, 8, 9, 10 of theory syllabus.

**GENERAL PHYSIOLOGY****30 Hrs****Introduction:-** (Duration of Teaching 3 Hours)

Physiology - Homeostasis

**Cell:-**

Structure Of A Cell, Intracellular Organelles, Cell Junctions, Stem Cells, Cell Aging &amp; Death

**Transport through cell membranes:-**

Mechanisms Of Transport Across Cell Membrane

**Body Fluids:-**

Compartments Of Body Fluid, And Measurement Of Body Fluids.

**BLOOD (- 7 Hrs)****Composition & Functions Of Blood****Plasma:-**

Composition And Functions Of Plasma Proteins

**Cellular Components Of Blood:-**

(RBC, WBC, PLATELETS) Morphology, Physiological Values, Functions, Formation Of Hemopoietic Cells, Life Span &amp; Applied Aspects

**Hemoglobin:-**

Formation, Functions, Physiological Values, Destruction Of RBC, Applied Aspects

**ESR, PCV, Blood Indices & Anemia****Blood Groups:-**

ABO Blood Grouping, Rh Typing, Landsteiner's Law, Cross Matching, Storage Of Blood, Indications And Contraindications Of Blood Transfusion.

**Hemostasis:-**

Clotting Factors, Anticoagulants, Applied Aspects

**GASTROINTESTINAL PHYSIOLOGY (- 4 Hrs)**

Structural Overview of Gastrointestinal Tract

Movements of GIT AND PHONATION

Salivary Glands- Its Secretions, Composition, Functions And Regulation Of Salivary Secretions

Applied Aspects In oral cavity ( Salivary secretion).

## **NERVE PHYSIOLOGY(- 3 Hrs)**

**Nerve :** Structure, Types Of Neuroglial Cells, Functions Of Nerves

**Receptors :** Definition, Types Of Sensory Receptors.

**Reflex :** Arc, Action & Reflexes.

**Autonomic Nervous System:** Organization And Functions

**Synapse & Neuromuscular Junction**

## **THE CARDIOVASCULAR SYSTEM(- 3 Hrs)**

Anatomy Of The Heart, Structure And Function Of Cardiac Muscle, Conducting System Of Heart, Systemic And Pulmonary Circulation, Over View -Heart Rate, Stroke Volume, Cardiac Output, Heart Sounds, Pulse, BP

## **RESPIRATORY SYSTEM(- 4 Hrs)**

An Overview of respiratory system: air way anatomy, muscles of ventilation, Regulation of Respiration

Functions of respiratory system, ventilation : exchange & transport of respiratory gases, surfactant.

**Applied aspects:** artificial respiration, hypoxia, Cyanosis, Abnormal patterns of Breathing.

## **ENDOCRINE SYSTEM & REPRODUCTIVE SYSTEM – (– 4 Hrs)**

**Over view of endocrine system;** Calcium & Phosphate Metabolism, Regulation And Applied Aspects

Vitamin D synthesis & Glucose metabolism,

Hormonal changes during Pregnancy.

**Contraceptive methods**

## **SPECIAL SENSES – (– 2 Hrs)**

**Tongue:-**

Taste Buds, Primary Taste sensation and abnormalities of taste

**Olfaction**

**SECTION-A**  
**PATHOLOGY & MICROBIOLOGY**

**Q P Code: 5183**

**30 Hrs**

- General Principles of Pathology - Inflammation, Degeneration and repair.
- Application of general principles of pathology of teeth and surrounding tissues.
- Development of teeth and Histology of enamel, Dentine, Pulp and Periodontal tissues.
- Brief description of Pathology and Bacteriology of Dental caries, Gingival and Periodontal infections.
- Importance of Microbiology & relation to maintenance of medical record.
- Names of the organisms – Bacteria
- Names of the organisms – Viruses
- Names of the organisms – Fungi
- Names of the organisms – Parasitology
- Names of common infectious diseases.
- Investigations done in microbiology

**EXAM: MICROBIOLOGY + PATHOLOGY**

**Pathology 20 marks**

**Microbiology 15 marks**

1. 5 marks X 5 questions = 25 marks (answer any 4 out of 6 questions)
2. 2 marks X 05 questions = 10 marks

Paper should be set by the pathologist and valued by the pathologist.

**NO PRACTICAL EXAMINATION IN MICROBIOLOGY**

## SECTION-B

Q P Code: 5184

### Subject: Applied Pharmacology

**Syllabus:**

**Total teaching = 20 hrs**

1. Introduction
  - a. Definition and terminology  
Pharmacology, Drug (WHO Definition)  
Pharmacokinetics, Pharmacodynamics  
Pharmacotherapeutics, chemotherapy,  
Clinical pharmacology, Toxicology and Pharmacopeias.
  - b. Drug nomenclature.
  - c. Concept of essential medicines list
2. Routes of drug administration in general and emphasis on Topical & Oral routes
3. Adverse drug reactions (ADR), Definition and types, with emphasis on side effects involving Oral Cavity, hypersensitivity reactions and their management.
4. Analgesics – Definition and types, ,  
Commonly used NSAIDS- their Uses, adverse effects & Precautions  
Ibuprofen, Diclofenac, Paracetamol, including Topical / Oral Preparations
5. Sedatives hypnotics- Diazepam, Alprazolam- Definition, uses in Dentistry, adverse effects
6. Antiseptic Mouth Washes and Gargles
7. Local anesthetics – Definition, Lignocaine, Benzocaine – Dosage Forms used in Dentistry including Uses.
8. Antimicrobial drugs - Definition , Uses of Amoxicillin, Doxycycline, Metronidazole in Dentistry
9. Styptics
10. Glucocorticoids – Emphasis on Topical Preparations, Uses in Dentistry and Adverse effects involving Oral cavity

#### **Scheme of examination**

**Internal examination:** Not required

**Theory examination: could be conducted for 15 marks along with other subjects**

1. Short Essay      1 x 5 = 5 (Answer any One out of Two Questions)  
2 Short answers    5 x 2 = 10

## SECTION-A

Q P Code: 5185

### Basic Biochemistry

30 Hrs

- Carbohydrates:
  - Classification, chemistry & properties of monosaccharides, diaccharides, and polysaccharides.
- Proteins:
  - Proteins – Definition, classification, properties.
  - **Amino acids** - Definition, classification, essential & non essential amino acids. General reactions of amino acids. Formation of urea and creatinine.
  - Plasma proteins – Definition, classification and reference values.
- Lipids
  - Definition, classification and properties of lipids and lipoproteins.
- Nucleic acid chemistry
  - Definitions of DNA, RNA, purines and pyrimidines, nucleosides and nucleotides.
- Enzymes- Definition, Isoenzymes and factors affecting enzyme activity.
- Vitamins and Minerals: in brief about reference values in blood
- Abnormal Constituents of Urine.
- Nutrition in relation to general and oral health

### Question paper pattern

#### Theory

1. Long Essay Question.            5 Marks X 2 = 10 Marks
2. Short Notes Question            5 Marks X 3 = 15 Marks

#### No practical examination



**Syllabus for Dental Radiology**

1. Types of Dental Radiographs
2. Processing of Dental Radiographs
3. Dental Radiographic techniques
4. Radiation Hazards & Protection against Radiation

**Question paper pattern****Theory**

1. Long Essay Question.      5 Marks X 2 = 10 Marks
2. Short Notes Question      5 Marks X 3 = 15 Marks

**Scheme of Examination - 1½ Hours**

Paper	SUBJECT	SECTION	Question paper Code	MAX. MARKS	No. of Teaching Hour
Paper 1	General Anatomy, Histology	Section A	<b>5181</b>	25	30
	General Physiology	Section B	<b>5182</b>	25	30
Paper 2	General Pathology, Microbiology	Section A	<b>5183</b>	35	30
	Applied Pharmacology	Section B	<b>5184</b>	15	20
Paper 3	General Biochemistry	Section A	<b>5185</b>	25	30
	Radiology	Section B	<b>5186</b>	25	10

# Third Year Diploma in Dental Hygiene

**Paper-I**

**Q P Code: 6181**

**60 Hrs**

- 1) Tissues of the Periodontium,
  - a) Gingiva,
  - b) Cementum,
  - c) Periodontal ligament
  - d) Alveolar bone.
- 2) Saliva
  - a) Composition and functions
- 3) Gingival Diseases
  - a) Plaque induced
  - b) Non Plaque Induced
  - c) Gingival Recession
  - d) Gingival Enlargement
  - e) Acute Gingival Lesions – Anug, Acute Herpetic Gingivo stomatitis, pericoronitis.
- 4) Periodontitis – Chronic & Aggressive types
  - a) Periodontal Pocket
  - b) Gingival & Periodontal Abscess
- 5) Dental Plaque
  - a) Definition
  - b) Stages of Plaque formations
- 6) Calculus
  - a) Definition & Classification
  - b) Composition, Formation & Modes of attachment
  - c) Clinical Significance.
- 7) Dental Stains
  - a) Extrinsic & Intrinsic
- 8) Food impaction

- 1) Habits – Mouth breathing, Tongue thrusting, Bruxism others
- 2) Trauma from Occlusion – Define & Stages
- 3) Clinical Examination  
History, Oral examination, Dental Examination, OHI(S) index,  
Radiographic Examination, Diagnosis, Prognosis & treatment planning.
- 4) Plaque control  
Tooth brushes, methods of tooth brushing, power tooth brushes.  
Interdental cleaning Aids  
Chemical Plaque Control methods  
Dentifrices, Oral irrigation devices  
Plaque control of Dental Implants
- 5) Instruments & Principles of Instrumentation.  
Basic Sharpening principles  
Ultrasonic & Sonic Scaling, mode of action, devices  
Instrument Maintenance
- 6) Dental Hygiene
  - a) Definition
  - b) Objectives
  - c) Rules & Regulations of Dental Hygiene
- 7) Brief description of Sutures & Periodontal Dressing
  
- 8) Management of Patients with special needs
  - a) Pregnant Patient
  - b) Pediatric Patient
  - c) Oral & Maxillofacial Surgery patient.
  - d) Care of patients with Disabilities
  - e) Medically compromised Patients.
- 9) Medical & Dental Emergencies
  - a) Syncope
  - b) Shock
  - c) Diabetes(Hyperglycemia)
  - d) Hypertension
  - e) Haemophilia
  - f) Asthma

- 1) Public Health Dentistry
  - a) Introduction to Community Dentistry
  - b) Psychological aspects of the Child and Parents and their counseling
  - c) Aims and objectives of Dental Health Education
  - d) Water supply to community and their implications on dental health
  - e) General Epidemiology and Environmental Health
- 2) Dental Ethics & Jurisprudence
  - a) Definition of ethics, Professional ethics & ethical matters relating to health care
  - b) Dentists Act, 1948 as related to registration of Dental Hygienists and Dentists
- 3) Brief account of Oral Cancer and HIV & HBV associated Periodontitis
- 4) Dental Materials
  - a) General knowledge of various materials used in Dentistry and their manipulation
  - b) Impression materials and models materials
  - c) Dressing of plaster models, charts, posters and other Audio-Visual aids

**Practicals:****100 marks**

- a) Instruments & Sterilisation Techniques
- b) Instructions for Oral health maintenance
- c) Supportive Periodontal therapy (SPT)
- d) Various methods of Oral Prophylaxis
- e) Use of disclosing agent and various Oral hygiene aids
- f) Care of Oral cavity and appliances during Orthodontic, Prosthodontic and Maxillofacial cases
- g) Preparation of plaster models, charts and other audio-Visual aids
- h) Chairside assistance, reception & Patient appointments
- i) Accounts, book keeping and basic computer knowledge

**Scheme of Examination - 3 Hours**

Paper	SUBJECT	Question paper Code	MAX. MARKS	No. of Teaching Hour
Paper 1	Etiology and Pathogenesis of Periodontal diseases	<b>6181</b>	100	60
Paper 2	Diagnosis and Treatment of Periodontal disease	<b>6183</b>	100	60
Paper 3	Public Health Dentistry, ethics & Jurisprudence, Dental materials	<b>6185</b>	100	40
	Practical		100	60

**Scheme of Practical Examination (only for Third year)**

Practicals (Case History &amp; Scaling): 80 marks

Viva-Voce : 20 marks

## Books

- a. Comprehensive review of Dental Hygiene - II Edition by Barby
- b. Clinical Periodontology for Dental Hygienist - Carranza. Jr.
- c. Fundamentals of Periodontal Instruments - III Edition by Jill
- d. Review of Dental Hygiene by Nelson
- e. Periodontics for Dental Hygiene - II Edition by Allen
- f. Dimensions of Dental Hygiene - III Edition by Pauline & Hpeelee
- g. Clinical Practice for Dental Hygiene - VII Edition by Wilkins
- h. Periodontology for Denal Hygienist - by Perry
- i. Oral Hygiene - IV Edition by Bunting
- j. Dental Hygienist - Guide to Nutritional Care by Judy & Ratliss.
- k. Infection Control & Management of Hazardious material for Dental Team by Miller.
- l. Comprehensive Dental Hygiene Care - IV Edition by Irene R. Woodall.